IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Patent Application

Applicant(s):	Boer et al.
Case:	8-28-6-6
Serial No.:	10/672,657
Filing Date:	September 26, 2003
Group:	2464
Examiner:	Pawaris Sinkantarakorn
Title:	Method and Apparatus for Detecting a Collision in a Carrier Sense Multiple Access Wireless System

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APPEAL BRIEF

Mail Stop Appeal Brief - Patents
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

Applicants hereby appeal the final rejection dated February 23, 2010, of claims 1-10 and 18-23 of the above-identified patent application.

REAL PARTY IN INTEREST

The present application is assigned to Agere Systems, Inc., as evidenced by an assignment recorded on February 2, 2004 in the United States Patent and Trademark Office at Reel 014951, Frame 0624. The assignee, Agere Systems, Inc., is the real party in interest.

RELATED APPEALS AND INTERFERENCES

There are no related appeals or interferences.

STATUS OF CLAIMS

The present application was filed on September 26, 2003 with claims 1 through 23. Claims 11-17 were cancelled in the Amendment and Response to Office Action dated March 7, 2008. Claims 1-10 and 18-23 are presently pending in the above-identified patent application.

Claims 18-23 are rejected under 35 U.S.C. §101 because the claimed invention is directed to non-statutory subject matter, and claims 1-10 and 18-23 are rejected under 35 U.S.C. §103(a) as being unpatentable over Wang (United States Patent No. 5,721,733) and Currivan et al. (United States Patent Application Publication Number 2003/0026283) in view of Kanterakis et al. (United States Patent No. 6,169,759).

Claims 1 and 18 are being appealed.

STATUS OF AMENDMENTS

The claims have not been amended subsequent to issuance of the final Office Action.

SUMMARY OF CLAIMED SUBJECT MATTER

Independent claim 1 is directed to a first wireless communication device (FIG. 1: 110), comprising: a controller capable of receiving an acknowledgement (ACK) message transmitted by a second wireless communication device (FIG. 1: 110) in response to a message transmitted by said first wireless communication device (FIG. 1: 110; page 6, lines 3-24), and a collision detector (FIG. 4: 400) that monitors a wireless medium for collisions of said acknowledgement message if a measured energy level exceeds a predefined threshold (page 6, line 25, to page 7, line 9).

Independent claim 18 is directed to a method for detecting a collision in a wireless communication network (FIG. 1: 100), said method comprising the steps of: determining if an acknowledgement message is received in response to transmitted data (page 6, lines 3-24); and monitoring said wireless communication network to detect a collision of said acknowledgement message if a measured energy level exceeds a predefined threshold (page 6, line 25, to page 7, line 9).

STATEMENT OF GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

Claims 18-23 are rejected under 35 U.S.C. §101 because the claimed invention is directed to non-statutory subject matter, and claims 1-10 and 18-23 are rejected under 35 U.S.C. §103(a) as being unpatentable over Wang and Currivan et al. in view of Kanterakis et al.

ARGUMENT

Section 101 Rejections

Claims 18-23 were rejected under 35 U.S.C. §101 because the claimed invention is directed to non-statutory subject matter. In particular, the Examiner asserts that, while the instant claim(s) recite a series of steps or acts to be performed, the claim(s) neither transform underlying subject matter nor positively tie to another statutory category that accomplishes the claimed method steps, and therefore do not qualify as a statutory process.

Appellants note that independent claim 18 requires a wireless communication network and is therefore tied to another statutory category. In addition, independent claim 18 requires wherein one or more of said steps are performed by a processor.

Thus, Appellants respectfully request that the section 101 rejections be withdrawn.

Independent Claims 1 and 18

Independent claim 1 and 18 were rejected under 35 U.S.C. §103(a) as being unpatentable over Wang and Currivan et al. in view of Kanterakis et al. In particular, the Examiner asserts that Wang discloses a collision detector that monitors a wireless medium for collisions of the acknowledgement message (col. 5, line 66, to col. 6, line 8). Appellants also note that the Examiner acknowledges that Wang does not disclose that the collision detector evaluates an energy level, preamble detection, and payload detection. The Examiner asserts, however, that Currivan et al. discloses a collision detector that monitors for collisions based on an energy level and preamble detection (paragraphs 55-58 and 70-78; a collision is detected based on a SNR indication signal and a threshold signal and a preamble detection; where the SNR indication signal represents a ratio of signal energy level and noise energy level; for example, an in-phase collision is detected when the output signal 459 is low and the output signal 457 is high, where the output signal 459 is related to the SNR indication signal 438 and the output signal 457 is related to the power indication signal). Furthermore, the Examiner acknowledges that Wang and Currivan do not expressly disclose a collision detector that monitors for collisions based on payload detection, but asserts that Kanterakis discloses this limitation (col. 6, lines 45-50, and col. 9, lines 8-17).

Appellants note that independent claims 1 and 18 require a controller *configured to monitor for an acknowledgement (ACK) message* transmitted by a second wireless

communication device in response to a message transmitted by said first wireless communication device, and a collision detector that monitors a wireless medium for collisions of said acknowledgement message *based on a comparison of an energy level and an energy level threshold, preamble detection, and payload detection*. Support for this limitation can be found on page 7, lines 10-20, of the originally filed disclosure.

First, as the Examiner acknowledges, Wang does not disclose a collision detector that monitors a wireless medium for collisions *based on an energy level, preamble detection, and payload detection*.

Appellants also note that, in par. 0076 of Currivan et al., it is clear that output signal 457 indicates the power of the data portion of a burst transmission. In Table 1, it is clear that output signal 457 does ***not*** correlate with whether a collision is detected. In fact, a collision can be detected if the output signal 457 is high (second row), medium (fourth row), low (sixth row) or high (seventh row). Thus, a collision is *not* detected in Currivan et al. *based on a comparison of an energy level and an energy level threshold*, as required by independent claims 1 and 18.

Regarding the Examiner's previous assertion that Currivan discloses that a collision is detected when the output signal 459 indicates the average SNR of a burst transmission is low, Appellants note that a SNR is a *signal-to-noise* ***ratio*** and is *not* a measured *energy level* (i.e., not a measured level of energy), as would be apparent to a person of ordinary skill in the art. Thus, Currivan does *not* disclose or suggest determining an *energy level* or monitoring said wireless communication network to detect a collision of said acknowledgement message *based on a comparison of an energy level and an* ***energy level threshold*** or *based on a comparison of an energy level and an* ***energy level threshold***, *preamble detection, and payload detection.*

In the Response to Arguments section of the final Office Action, the Examiner asserts that Currivan teaches that a collision is detected based on a SNR indication signal and a threshold signal, where the SNR indication signal represents a ratio of (a) signal energy level and (a) noise energy level, and that Currivan therefore discloses a collision based on a comparison of an energy level and an energy level threshold.

Contrary to the Examiner's assertion (and as noted above), a SNR is a *signal-to-noise* ***ratio*** and is *not* a measured *energy level* (i.e., not a measured level of energy), as would be

apparent to a person of ordinary skill in the art. Furthermore, the generation of a SNR indication signal (a *signal-to-noise* ***ratio***) requires calculating a ratio of a signal energy level and a noise energy level; an *energy level* ***threshold*** is *not* required for this calculation. ***Moreover, Currivan does not disclose or suggest an energy level threshold in this context.***

Thus, even as combined in the manner suggested by the Examiner, Wang and Currivan *do not teach every element of the independent claims*. Furthermore, based on the KSR considerations discussed hereinafter, the combination/modification suggested by the Examiner is not appropriate.

KSR Considerations

An Examiner must establish "an apparent reason to combine ... known elements." *KSR International Co. v. Teleflex Inc. (KSR)*, 550 U.S. ___, 82 USPQ2d 1385 (2007). Here, the Examiner merely states that it would have been obvious to implement a collision detection module as taught by Currivan into the collision detecting apparatus of Wang since it enables accurate detection of collisions.

Appellants are claiming a new technique for collision detection in a communication network. There is *no* suggestion in Wang or in Currivan, alone or in combination, for a collision detector that monitors a wireless medium for collisions of said acknowledgement message *based on a comparison of an energy level and an energy level threshold, based on a comparison of an energy level and an energy level threshold and preamble detection* or *based on a comparison of an energy level and an energy level threshold, preamble detection, and payload detection*.

Currivan's teaching to utilize a SNR ratio ***teaches away*** from the present invention. The *KSR* Court discussed in some detail United States v. Adams, 383 U.S. 39 (1966), stating in part that in that case, "[t]he Court relied upon the corollary principle that when the prior art teaches away from combining certain known elements, discovery of a successful means of combining them is more likely to be nonobvious." (KSR Opinion at p. 12). Thus, there is no reason to make the asserted combination/modification.

Thus, Wang, Currivan, and Kanterakis, alone or in combination, do not disclose or suggest a controller configured to monitor for an acknowledgement (ACK) message transmitted by a second wireless communication device in response to a message transmitted by said first wireless communication device, and a collision detector that monitors a wireless

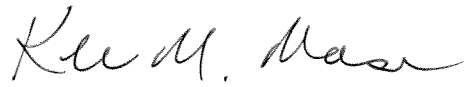
medium for collisions of said acknowledgement message based on a comparison of an energy level and an energy level threshold, preamble detection, and payload detection, as required by independent claim 1, and do not disclose or suggest monitoring said wireless communication network for an acknowledgement message received in response to transmitted data; and monitoring said wireless communication network to detect a collision of said acknowledgement message based on a comparison of an energy level and an energy level threshold, preamble detection, and payload detection, as required by independent claim 18.

Conclusion

The rejections of the cited claims under section 103 in view of Wang, Currivan, and Kanterakis, alone or in any combination, are therefore believed to be improper and should be withdrawn. The remaining rejected dependent claims are believed allowable for at least the reasons identified above with respect to the independent claims.

The attention of the Examiner and the Appeal Board to this matter is appreciated.

Respectfully,



Date: August 20, 2010

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APPENDIX

1. A first wireless communication device, comprising:

a controller configured to monitor for an acknowledgement (ACK) message transmitted by a second wireless communication device in response to a message transmitted by said first wireless communication device, and

a collision detector that monitors a wireless medium for collisions of said acknowledgement message based on a comparison of an energy level and an energy level threshold, preamble detection, and payload detection.

2. The first wireless communication device of claim 1, wherein said collision detector evaluates said energy level and detects a collision based on said energy level and said preamble detection or based on said energy level and said payload detection.

3. The first wireless communication device of claim 2, wherein said collision detector includes a payload detector and detects a collision based on said detected payload.

4. The first wireless communication device of claim 3, wherein said collision detector includes a preamble detector and detects a collision based on said detected preamble.

5. The first wireless communication device of claim 1, wherein said collision detector is activated after said first wireless communication device transmits data.

6. The first wireless communication device of claim 1, wherein said collision detector does not detect a collision if an ACK message or data header is received.

7. The first wireless communication device of claim 1, wherein said device is implemented in accordance with the IEEE 802.11 Standard.

8. The first wireless communication device of claim 1, wherein said controller determines if said second wireless communication device correctly received said transmitted

message by monitoring said wireless medium.

9. The first wireless communication device of claim 1, wherein said controller determines that said second wireless communication device did not likely receive said message if a collision is detected.

10. The first wireless communication device of claim 1, wherein said controller determines that said collision was a cause of not receiving said ACK message.

11-17 (Cancelled).

18. A method for detecting a collision in a wireless communication network, said method comprising the steps of:

monitoring said wireless communication network for an acknowledgement message received in response to transmitted data; and

monitoring said wireless communication network to detect a collision of said acknowledgement message based on a comparison of an energy level and an energy level threshold, preamble detection, and payload detection, wherein one or more of said steps are performed by a processor.

19. The method of claim 18, wherein said monitoring to detect said collision step further comprises the step of detecting a payload and said collision detection is further based on said detected payload.

20. The method of claim 18, wherein said monitoring to detect said collision step further comprises the step of detecting a preamble and said collision detection is further based on said detected preamble.

21. The method of claim 18, wherein said monitoring steps are performed after said data is transmitted.

22. The method of claim 18, wherein said monitoring for said acknowledgement message step does not detect a collision if an ACK message or data header is received.

23. The method of claim 18, wherein said method is implemented in accordance with the IEEE 802.11 Standard.

EVIDENCE APPENDIX

There is no evidence submitted pursuant to § 1.130, 1.131, or 1.132 or entered by the Examiner and relied upon by appellant.

RELATED PROCEEDINGS APPENDIX

There are no known decisions rendered by a court or the Board in any proceeding identified pursuant to paragraph (c)(1)(ii) of 37 CFR 41.37.